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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/583,229	08/27/2008	Xiaodong Li	61240806US1	8224

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EXAMINER	
LEVITAN, DMITRY	
ART UNIT	PAPER NUMBER
2461	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentprocurement@perkinscoie.com

Office Action Summary	Application No.	Applicant(s)	
	10/583,229	LI ET AL.	
	Examiner	Art Unit	
	Dmitry H. Levitan	2461	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 August 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-26* is/are allowed.

6)☒ Claim(s) *27-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 August 2008* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Claim Rejections - 35 USC § 112

1. Claim 32 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The specification does not provide sufficient details to enable a skilled in the art to make and use the invention because it does not adequately describe the following:

Regarding claim 32, how to identify an application, which requires better interference averaging than the second modulation technique.

In addition, the disclosure provides no information on comparing interference averaging for different applications, performed by two modulation techniques.

Regarding claim 32, how to identify an application, which requires higher spectral efficiency and lower vulnerability to multi-path propagation effects than the first modulation technique.

In addition, the disclosure provides no information on comparing spectral efficiency and vulnerability to multi-path propagation effects for different applications, performed by two modulation techniques.

The specification does not provide enough details about the structure and operation of the elements associated with the above identified claimed features to enable one skilled in the art to make and use the invention without undue experimentation.

2. Claims 27 and 32 are rejected under 35 U.S.C. 112, first paragraph, as single means claims.

2164.08(a) Single Means Claim

A single means claim, i.e., where a means recitation does not appear in combination with another recited element of means, is subject to an undue breadth rejection under 35 U.S.C. 112, first paragraph. *In re Hyatt*, 708 F.2d 712, 714-715, 218 USPQ 195, 197 (Fed. Cir. 1983) (A single means claim which covered every conceivable means for achieving the stated purpose was held nonenabling for the scope of the claim because the specification disclosed at most only those means known to the inventor.). When claims depend on a recited property, a fact situation comparable to *Hyatt* is possible, where the claim covers every conceivable structure (means) for achieving the stated property (result) while the specification discloses at most only those known to the inventor.

3. Claims 31-35 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 31 limitations, directed to "a desired power level" are unclear, because it is not understood, which power level is considered "desired" and which is not.

Claim 31 limitations, directed to "significantly lower power" are unclear, because it is not understood, which power is considered "significantly lower", as the claim limitations lack any details on which lower values are considered significantly lower and which are not.

Claim 32 limitations, directed to "applications requiring better interference averaging than the second modulation technique" are unclear, because it is not understood how an application can be compared with a modulation technique.

Claim 32 limitations, directed to "applications requiring higher spectral efficiency and lower vulnerability to multi-path propagation effects than the first modulation technique" are unclear, because it is not understood how an application can be compared with a modulation technique.

Claim 32 recites the limitation "the frequency domain" in lines 6 and 11. There is insufficient antecedent basis for these limitations in the claim

Claim 33 recites the limitation "the frequency spectrum" in line 8. There is insufficient antecedent basis for this limitation in the claim.

Other claims are rejected as the claims depending on the claims rejected above.

Claim Rejections - 35 USC § 102

4. Claims 33 and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Li, Liu and Zhang (US Pub. 2002/0159422).

5. Regarding claims 33 and 35, Li, Liu and Zhang teach a broadband wireless communication system (wireless communication system, as shown on Fig. 11 and described on [0075]-[0078]) comprising:

a plurality of transmitters (transmitters 1109 and 1110, as shown on Fig. 11), wherein

at least one transmitter is configured to transmit Direct Sequence Spread Spectrum signals (CDMA transmitter 1110, as CDMA modulation is known as an implementation of Direct Sequence Spread Spectrum techniques, as shown on Fig. 11 and described on [0076]),

at least one transmitter is configured to transmit Multi-Carrier signals (OFDM transmitter 1109, as OFDM modulation is known as a MC type modulation, as shown on Fig. 11 and described on [0076]), and

the transmitted DSSS signals are superimposed with the transmitted MC signals in the frequency spectrum (using switch 1107 to combine both signals using TDD, therefore utilizing the same frequency channel, as described on [0075]).

Claim Rejections - 35 USC § 103

6. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Li, Liu and Zhang.

Li, Liu and Zhang substantially teach the limitations of claims (see claim 33 and 35 rejections above), including use of two transmitters.

Li, Liu and Zhang do not teach using a single transmitter to transmit both signals.

Official notice is taken that combining several elements into single one for cost savings is well known and expected in the art.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a single transmitter in the system of Li, Liu and Zhang to reduce the system cost and simplify the system design.

7. Claims 27, 29 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kao (US Pub. 2004/0264600).

Kao substantially teaches the limitations of claims:

A broadband communication system for a multi-user multi-cell environment (mobile cellular telephone system, as described on [0005]), the system comprising:

a receiver capable of receiving a signal that is an addition of Multi-Carrier (MC) and orthogonal spreading code (OSC) signals (a receiver to receive OFDM signal and DSSS/CCK signal, as shown on Fig. 2, 3 and 5, as described on [0010]-[0011] and [0035]);

wherein the OSC signals are transmitted at a different power than the MC signals (power control module 78 performing power control for the signals of two described modulations, wherein the

power of the signals are different and depends on the corresponding modulation data rate, as shown on Fig. 5 and described on [0035] and [0036]); and

wherein the receiver employs at least one interference cancellation technique to cancel the interference OSC causes to the MC signal (adjacent channel interference filter 512 to remove adjacent channel interference, shown on Fig. 6 and described on [0037], wherein DSSS/CCK and OFDM channels are adjacent o each other).

Kao does not teach OSC signals are transmitted at a lower power than the MC signals.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use OSC signals are transmitted at a lower power than the MC signals to the system of Kao as a design choice, as using different data selections for the modulations will produce different power levels, higher or lower, of the corresponding modulated signals.

8. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kao.

Kao substantially teaches the limitations of claim (see claim 27 rejection above).

Kao does not teach using a rake receiver to improve the receiver performance in multi-path environment.

Official notice is taken that using a rake receiver to improve the receiver performance in multi-path environment is well known and expected in the art.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add using a rake receiver to improve the receiver performance in multi-path environment to the system of Kao.

9. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kao.

Kao substantially teaches the limitations of claim (see claim 27 rejection above), including using interference filter 512.

Kao does not teach using multiple step iterative interference cancellation to improve reception of the signal.

Official notice is taken that using multiple steps iterative interference cancellation to improve reception of the signal is well known and expected in the art.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add using multiple step iterative interference cancellation to improve reception of the signal to the system of Kao.

Allowable Subject Matter

10. Claims 1-26 are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dmitry H. Levitan whose telephone number is (571) 272-3093. The examiner can normally be reached on 8:30 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571) 272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Dmitry H. Levitan
Primary Examiner
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